

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-4. (Canceled)

5. (Previously Presented) A nitride semiconductor light emitting device comprising:

an active layer formed of a GaN family compound semiconductor; and  
multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{Al}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$ ,  $0 \leq y < 1$ , and  $x > y$ ,

wherein the thicknesses of the  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layers differ from each other.

6. (Previously Presented) A nitride semiconductor light emitting device comprising:

an active layer formed of a GaN family compound semiconductor; and

multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{Al}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$ ,  $0 \leq y < 1$ , and  $x > y$ ,

wherein the thicknesses of the  $\text{Al}_y\text{Ga}_{1-y}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layers differ from each other.

7. (Previously Presented) A nitride semiconductor light emitting device comprising:

an active layer formed of a GaN family compound semiconductor; and

multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{Al}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$ ,  $0 \leq y < 1$ , and  $x > y$ ,

wherein the values of  $x$  for the  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layers differ from each other.

8. (Canceled)

9. (Previously Presented) A nitride semiconductor light emitting device comprising:
- an active layer formed of a GaN family compound semiconductor; and
  - multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$  and  $0 < y \leq 1$ ,
- wherein the thicknesses of the  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layers differ from each other.
10. (Previously Presented) A nitride semiconductor light emitting device comprising:
- an active layer formed of a GaN family compound semiconductor; and
  - multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$  and  $0 < y \leq 1$ ,
- wherein the thicknesses of the  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layers differ from each other.

11. (Previously Presented) A nitride semiconductor light emitting device comprising:

an active layer formed of a GaN family compound semiconductor; and  
multi-quantum barrier layers formed by repeatedly depositing a double layer consisting of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layer at least two times, at either the upper or lower side of the active layer, by which an energy band has a multi-quantum barrier structure, wherein  $0 < x < 1$  and  $0 < y \leq 1$ ,

wherein the values of  $x$  for the  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layers of the double layers differ from each other, thereby making the energy levels of the multi-quantum barrier layers differ from each other.

12. (Previously Presented) A nitride semiconductor light emitting device comprising:

a substrate;  
an active layer formed on the substrate, in which light emission occurs;  
an n-type material layer for generating a laser beam, the n-type material layer being formed between the substrate and the active layer and which includes an n-type clad layer for preventing light loss in the direction of installation of the substrate;  
a carrier blocking layer, a p-type waveguide layer and a p-type compound semiconductor layer which are sequentially deposited on the active layer; and

a first electrode and a second electrode generating a potential difference for diffusion of electrons to the active layer,

wherein the carrier blocking layer is a multi-quantum barrier layer,

wherein the multi-quantum barrier layer consists of double layers of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layer ( $0 < x < 1$ ,  $0 < y \leq 1$ ), and

wherein the thicknesses of the  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layer differ from each other.

13. (Previously Presented) The nitride semiconductor light emitting device of claim 12, wherein the n-type material layer comprises:

an n-type waveguide layer formed between the n-type clad layer and the active layer; and

an n-type compound semiconductor layer formed between the n-type clad layer and the substrate and connected to the first electrode.

14. (Previously Presented) The nitride semiconductor light emitting device of claim 12, wherein the active layer is a III-V group nitride compound semiconductor layer having a multi-quantum well structure.

15. (Previously Presented) The nitride semiconductor light emitting device of claim 12, wherein the n-type clad layer has a thickness between  $0.5\ \mu\text{m}$  and  $1.7\ \mu\text{m}$ .

16. (Original) The nitride semiconductor light emitting device of claim 12, wherein the p-type waveguide layer has a thickness between  $0.15\ \mu\text{m}$  and  $0.22\ \mu\text{m}$ , by which light mode and light gain are maximized.

17-18. (Canceled)

19. (Previously Presented) A nitride semiconductor light emitting device comprising:

a substrate;

an active layer formed on the substrate, in which light emission occurs;

an n-type material layer for generating a laser beam, the n-type material layer being formed between the substrate and the active layer and which includes an n-type clad layer for preventing light loss in the direction of installation of the substrate;

a carrier blocking layer, a p-type waveguide layer and a p-type compound semiconductor layer which are sequentially deposited on the active layer; and

a first electrode and a second electrode generating a potential difference for diffusion of electrons to the active layer,

wherein the carrier blocking layer is a multi-quantum barrier layer, and

wherein the multi-quantum barrier layer consists of a plurality of double layers of an  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layer and an  $\text{In}_y\text{Ga}_{1-y}\text{N}$  layer ( $0 < x < 1$ ,  $0 < y \leq 1$ ) and wherein the values of  $x$  for the  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  layers of the double layers differ from each other, thereby making energy levels of the multi-quantum barrier layer differ from each other.

20. (Previously Presented) The nitride semiconductor light emitting device of claim 12, wherein the p-type waveguide layer and the p-type compound semiconductor layer are the same material layer, wherein the doping concentration of the p-type compound semiconductor layer is higher than that of the p-type waveguide layer.

21. (Original) The nitride semiconductor light emitting device of claim 12, wherein the material of the substrate is one selected from the group consisting of sapphire, silicon carbon (SiC), silicon (Si), gallium arsenic (GaAs), gallium nitride (GaN) and zinc oxide (ZnO).

22. (Previously Presented) The nitride semiconductor light emitting device of claim 13, wherein the active layer is a III-V group nitride compound semiconductor layer having a multi-quantum well structure.

23. (Previously Presented) The nitride semiconductor light emitting device of claim 13, wherein the n-type clad layer has a thickness between  $0.5 \mu\text{m}$  and  $1.7 \mu\text{m}$ .